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ABSTRACT

This paper outlines a range of projects developed with funding from the European Community for a computer communication and research network and the electronic means employed to realize the network, from the point of view of the Director of Languages Resource Unit, University of Ulster, who must coordinate language training on six distant campuses just within Ireland. This network from the Department of European Studies and Modern Languages at the University of Ulster combines 21, 3rd level institutions from 5 countries. The development of the network and videoconferencing system was begun due to the administrative uniting of two physically distant institutions of higher education in Northern Ireland. The computer network reduces commuting time, expense, and personal aggravation. The system is linked to mainland European institutions for research as well as translation and language teaching exchange. Although quite successful, the system is now in jeopardy as European Community funding is being cut. (NAV)

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Erasmus and telematics: Networks for courses: Distance no object

Michael R. Jones

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Erasmus and Telematics : Networks for Courses : Distance No Object

Summary

One of the main aims of the ERASMUS and LINGUA networks, set up to enable guided and structured student exchange between the countries of the European Union, is the furthering of joint teaching projects of all kinds. Hitherto such projects have often been stillborn due to an insufficiency of funding, which, in turn, was often due to the need for a considerable and costly element of participant travel.

Recently, however, the rapid strides made in the development of such areas as E-Mail, computer and video-conferencing and in the creation of broadband digital data highways of all kinds have opened up new possibilities for joint project work, work which is designed to take advantage of the strong personal links engendered between the participating staff in the institutions concerned, due to the atmosphere of close co-operation which can characterise such networks. These links are providing a fertile ground from which joint teaching projects may now spring.
This paper outlines a particular range of projects arising out of one such network and the electronic means which are to be employed to realise them.

Before beginning my paper proper today I would like to begin with a cautionary tale. Some twenty years ago now I was part of a small team which visited several university language centres in the UK which had recently installed multiple language laboratory facilities, on a fact-finding mission. In the course of our visit to one such centre the chief technician showed us proudly into a large room which looked rather like what I imagined the main air traffic control centre at Heathrow airport to look like at the time. Even a single language laboratory console of that generation - with its battery of mechanical switches and vast arrays of winking lights - looked very intimidating and, as our informant proudly told us, here we were looking at a facility where five such consoles had been fully linked and integrated with one another, so every one of the total number of 150 student positions in the centre's five separate labs could be controlled at any one time by the same single teacher. Since I already had some experience of teaching classes of twenty in such a lab at the time and had already come firmly to the conclusion that a group of twenty was the maximum number one could satisfactorily control at any one time, my wonderment soon gave way to puzzlement, but I restrained the urge to challenge our host as to the

possible usefulness of his Startrek-type facility. However, as I lingered behind, I caught the eye of one of the other technicians and he muttered something swiftly to me to the effect that this grand white elephant had already existed for two years and it had never been used yet. My suspicions confirmed, I thought to myself rather smugly that I would never make the mistake of expending so much energy, time and money on linking language labs together: " No, sir, not me!" And yet today, twenty years on, I am standing in front of you in order to profess that I have in fact recently been doing that very thing, and with the further intention of advocating that you should perhaps consider doing it, too! My scenario is, however, somewhat different from the one I saw on that occasion.

The advent of the inter-European student and staff exchange programmes from ERASMUS through to LINGUA and now to SOCRATES and - hopefully - beyond, has enabled a whole range of third level courses throughout the EU to include a considerable period of study abroad, usually up to one year, within their undergraduate programmes. During the first years of these schemes the simple exchange of travelling bodies constituted a sufficient goal in itself, provided that the eventual aim of the partners involved was the full recognition of the qualifications gained abroad at the host institution by the academic authorities of the sender institution concerned. Further main aspects of ERASMUS et al. have included provision for teaching exchange and for regular monitoring visits between institutions, though a large number of smaller collaborative projects have also come about as a result of the established links, often on an unofficial level.

This is the situation pertaining in the case of the network I personally am concerned with, a network which is led from my own institution by a colleague who, like myself , belongs to the Department of European Studies and Modern Languages in the University of Ulster. Our network - if I may call it that - is one of the largest, currently combining, as it does, 21 third level institutions, drawn from five countries. For those who have exchanged and visited,the benefits accruing from these European schemes have been considerable, even if there was - amongst the teaching staff, at least - often an uncomfortable awareness that it was all, perhaps, just a trifle 'too good to last'. Earlier this year the expected - and probably ultimately inevitable - happened and Brussels began to let it be known that the exchange schemes overall were proving too costly and that cuts in expenditure were necessary. The gist of the message is that the mere exchange of a select and therefore privileged small percentage of students is also rather too elitist, in effect, and that we must find ways and means of increasing the numbers of participants benefitting from joint co-operation projects and yet make it all much cheaper, by avoiding the kind of heavy expenditure levels associated with programmes which involve travel and actual periods of residence abroad. Electronic means of

communication, it was further suggested, were likely to offer the key to the task of providing a much wider spread of the benefits across the student population as a whole, but at the same time at a much reduced *per capita* cost.

Within our own network we were fortunately not taken completely unawares by the announcements from Brussels and we could take comfort from the fact that a certain amount of experimental co-operative project work had already been done. What is more, we were already using the new electronic media - particularly Fax and electronic mail, at least to a modest extent - as the vehicles of communication for these projects. It soon became clear to everyone, however, as we deliberated upon the import of the new directive from Brussels at the annual plenary meeting of our LINGUA network, which was held in the University of Tours in March of this year, that the somewhat relaxed and casual pace that we had hitherto adopted towards this aspect of the work of our network had to be replaced by a much more vigorous approach in the future.

The already existing intra-network teaching and learning projects are the brainchildren of working parties which have been meeting for some years in the course of our annual plenary sessions. Certain areas had been identified, such as translation and area studies where it was felt that there was a useful degree of added value to be obtained by getting student groups from institutions in different countries to work in tandem on a particular theme or topic, with the aim of producing databases of materials, whilst at the same time ensuring that students were in fact learning by doing, and thus acquiring further skills in the field of the gathering and ordering of materials, in addition to broadening their horizons by experiencing the pleasures and pitfalls that teamwork on an international scale can provide.

Fortunately in the University of Ulster in general we have, I suspect, rather more experience than most in the area of joint teaching and learning projects of different kinds, which rely on the techniques of distance learning. Whilst the use of such devices as fax, electronic mail, computer conferencing and telephone conferencing has been productive in the case of several different initiatives, it is, in fact, the extensive development of, in particular, videoconferencing that has provided us with the - in many ways - most exciting medium of all.

The pioneering interest of Ulster in videoconferencing as a communications medium was not only the result of a degree of foresightedness in certain quarters of Educational Services, developments in this area have also been driven by sheer financial necessity. The University of Ulster was formed in 1984 as a result of the merging of two institutions which had already been in existence for a number of years, the New University of Ulster and of the Ulster Polytechnic.

Each partner brought into the new corporate body two geographically remote campuses, but the founding fathers set their faces squarely against a federal structure for the new institution and, equally decisively, they also publicly rejected the notion that faculties or departments should concentrate their courses and generally operate on one campus only. It was envisaged that as wide a range of courses would be made available on as many campuses as possible, and that either teaching staff would travel in order to ensure an equal spread of course provision or that courses would be delivered by other, possibly electronic means. In the first instance the planned for reliance on electronic means of course delivery constituted a genuine leap into the dark, since these same electronic means were still very much in their infancy at that time.

The first immediate effect of the merging of the two institutions was that the travel budget ballooned alarmingly as teaching and administrative staff took to the roads - usually in their own cars or chartered mini-buses - in order to be able to fulfill their various academic and administrative obligations on the different campuses. Since the Jordanstown and Belfast Campuses are situated sixty and eighty miles from the Coleraine and Londonderry campuses respectively, it is easy to see why, as the fatigue levels mounted, the clamour of voices demanding that some other solution be found, became ever more strident.

A considerable degree of alleviation was eventually achieved some years down the line when UU installed interlinked video-conferencing studios on its three major campuses in September 1990. As a result it became possible to attend the majority of administrative meetings in the full visual company of one's colleagues on the different campuses by simply exchanging the comfort of one's office chair for the padded luxury of the videoconferencing studio and, at the same time, giving the lie to the Shona proverb which proclaims that " Your feet may get you somewhere, but your backside won't."

Administrative meetings are, however, rarely of such a nature that they "tear the participant from the stool" - to coin a phrase in English! - and it is in the area of distance teaching that the more exciting developments of recent years in UU are to be found. It soon became commonplace for courses to be taught by staff on one campus to students on another, or for a course to be taught simultaneously on one, two or even three campuses with different lecturers teaching on the course team from whichever campus they chose to operate from. The system is technically sophisticated and, by means of computer-driven robotic links, allows the chairman of a meeting - or the teacher, in the case of a multi-site teaching situation - to transmit either a picture of her/himself or of the participating group on her/his site to the other sites, or, at the touch of a pressure sensitive pad, to single out or "zoom in" either on a student

asking a question or on an individual or a small group of students who are making a presentation to their fellow students, as the particular situation may require, thus bringing them immediately close to every participant, irrespective of their actual geographical location.

My personal involvement in this devopment has been considerable due to the fact that, in addition to being Director of the Languages Resource Unit - i.e. Head of the Language Centre - in the University as a whole, I am also at the same time Co-Ordinator of the Central AV Service on the Coleraine Campus and overall manager of the videoconferencing system as a whole. It has fallen to me, therefore, to encourage and assist all colleagues in the search to find different and innovative ways to employ the system in teaching and learning.

Hitherto the regular teaching commitment of the actual modern languages staff employing this link has, unfortunately - apart from a few experimental sessions - been mainly restricted to postgraduate level, where the teaching of the postgraduate French M.A. course has been made much easier since the clients - mainly serving teachers - simply travel to the campus which is most convenient to them after work in the evening and the members of the teaching team operate from their different home campuses.

However, we have made our systems available on a number of occasions for use by parties from outside the university proper, who are involved in projects based in modern languages. This activity has included linking secondary schools across the religious divide, from different parts of Northern Ireland, in a number of projects. These schools are members of a large scale European inter-schools project which was formed and nurtured by a colleague in the Education Faculty and involves a range of schools in GB, the Republic of Ireland, France, Belgium and Germany in a joint study programme, whereby, in the normal course of events, they maintain a regular dialogue on topics of mutual interest via such means as Fax, e-mail and computer conferencing.

Particularly notable in this context was a pre-event simulation of the Maastricht conference, staged a few days before the event, where sixth-form students from various schools throughout N. Ireland gathered at the various campus studios and took on a variety of roles, including those of the various delegations from all the EU countries, observers from the Third World, interpreters, conference organisers and officials, representatives of the media etc. . The event was very successful, since the young people took to the new medium like the proverbial ducks to water.

At this point I come to the end of my - I hope not too - lengthy excursus on the general history of videoconferencing in the University of Ulster, which is designed to establish the context in which the project I wish to describe today has come about, and home in on the particular, i.e. the core of my contribution to this conference. For my own part I have been more or less obsessed for several years now with the belief that the convergence of the various strands of computer and video technology - i.e. digitisation writ large - would potentially be of considerable benefit particularly to us language teachers. The most persistent of my obsessive thoughts was the envisionment of a super video-enhanced language laboratory that would eventually be linked into a whole network of language laboratories throughout Northern Ireland - and possibly even beyond - and would thus enable the languages staff on the various campuses of the UU to teach different classes of students irrespective of their actual geographical location. The existing problem and thus the driving rationale behind the project was the frustrating awareness of the considerable curtailment to the possible activities of my own Department of European Studies and Modern languages in the intra-University context, which arises out of the fact that the majority of the full-time languages staff are based on the Coleraine Campus of the University, which, in turn, results in a situation whereby the University's other campuses are necessarily somewhat starved of language courses in consequence. Some inter-campus commuting does take place, but no one likes doing it, particularly in the dark days of winter. There is thus clearly an onus on the Department of European Studies and Modern languages to explore means of providing on all campuses, by the use of electronic media and of distance learning techniques, courses and teaching which it is not in a position to provide through conventional means.

I should perhaps stress at this point that my vision of the new super language laboratory, back in 1986, arose in large measure out of my own personal conviction that a well-equipped and maintained language laboratory, in the hands of a trained teacher, still has a valuable role to play in the teaching of languages at all levels.

Fortunately, at that time, I was subsequently able to persuade the University to adopt a rolling development plan designed to modernise the whole AV side of our language teaching support service. As a first step we installed satellite TV and further persuaded the University to fund the installation of a Tandberg IS 10 language lab in the first instance on the Londonderry Campus on a scale generous enough to allow us to also install an integrated video distribution system of our own design into the lab, a system designed to feed a series of video monitors, whereby each monitor is shared by two students.

In the following year, and much encouraged by the news that Tandberg had taken up the idea of eventually producing a remote control facility to control an IS10 lab at a distance, we went a step further and, when installing a further, similarly video enhanced IS10 lab on the Coleraine Campus, we included not only two video cameras at the front, which were intended to serve normal micro-teaching purposes as well as eventually to enable the remote teacher to view his/her class in toto - or in pairs or small groups or as individuals - we also installed a further camera at the back of the lab, which was to provide the image of the teacher we would also - or so we hoped anyway - eventually need in order to transmit it to the remote site.

At this stage all seemed set fair, so decided to 'go European' and getting together with colleagues at the language centres in Göttingen and the FU in Berlin we put in a COMETT application, asking Brussels somewhat optimistically, as it turned out, for some hundreds of thousands of ECUS to enable us to realise our ambitious distance teaching project. Needless to say, we were told "Non!" since the technologies we were proposing to employ were in their infancy at the time and still horrendously expensive. Nevertheless - on our home ground at least - we pushed on ahead and, in the following year installed yet another IS10 lab identical to our Coleraine installation, this time on the Jordanstown Campus of the University.

Shortly after we had done this, the videoconferencing system arrived on the scene and we had every hope that we would soon realize our already long-cherished dream - but it was not to be. Several factors combined to cause us, temporarily at least, to lose heart. In the case of each campus our language laboratories are located at a considerable distance from the videoconferencing suite and the dedicated cable runs required to link each one into the system would have been costly at that time. Also the quality of the audio output on the videoconferencing system was very variable, an unacceptable factor in any equation involving work a language lab. An additional major obstacle was the fact that the videoconferencing network proved so popular that it was soon more or less fully booked up every day and it would thus have proved impossible to book a sufficient number of hours for language classes to make even a pilot distance teaching project worthwhile. In addition, the problem of the remote control of one IS10 lab from another was still by no means resolved.

However, there is an old saying to the effect that " everything comes to him who waits" - "gut' Ding will Weile haben" - and in our case, when we heard earlier this year of the injunction from Brussels that we must in future employ electronic links as the vehicle for any new projects, we took a fresh look at our own long-cherished telematic lab-linking project and decided that the time had finally come to perfect our very own distance teaching medium .

The grounds for our new-found optimism were firstly the news from Tandberg that the software was now available, which would - theoretically at least - allow the remote control of a distant language lab even from an ordinary PC. This was better than we thought, since the original plan had presumed that it would be necessary to sit at the console of an actual IS10 lab in order to control another. If it could be done from any PC then the teacher would clearly enjoy a greater freedom of operation and a lab would not be being tied up unnecessarily. On the videoconferencing front, too, technology had moved on. With the advent of Euro ISDN and of plug-in, portable units, international dial-up videoconferencing had become readily available at a comparatively low cost. As a result of this development a whole series of teaching and learning experiments have since been conducted in the University of Ulster, using ISDN 2 in order to link both with the UK mainland and with partner organisations in different European countries and even in North and South America.

With this scenario in mind, I chanced my arm rather by suggesting to my colleagues assembled at that same March network plenary in Tours, that there was every likelihood that we should indeed soon be able to take to the electronic highway in order to both expand our activities and at the same time to consolidate our LINGUA network in the future. Naturally enough, the responses of colleagues from some participating institutions displayed a marked degree of scepticism since not every partner by any means currently has a Tandberg lab, but the number of partner institutions who do and who can thus potentially readily plug into each other's systems, in this new and rather unique manner, is sufficient to enable us to set up some pilot projects, hopefully within the next six months.

Thus, since the urgent need to complete the long cherished project seemed at long last to coincide - in fortunate constellation - with the arrival of the technical wherewithal to actually deliver it, we now had every reason to get on with things. There was also the added incentive that we then received the details of EUROCALL '94 and, after some negotiation and a few phone calls quickly came to the conclusion that this Karlsruhe venue was likely to be fruitful ground on which to run our first public trials; a conviction which was further strengthened when we discovered that the latest version of the IS10 lab had recently been installed here.

The project then began to move rapidly forward when, in July of this year, Tandberg UK supplied us with the latest hardware control unit for the IS10 console and the "Windows" version of the control software for a PC. The technical team in Coleraine spent most of July and August ironing out a whole series of the kind of bugs which inevitably beset pioneering projects of this kind. I do not wish to risk boring you with all the ins and outs and all the technical details, but, in order to give you a brief awareness of the difficulties encountered, suffice it to say, perhaps,

merely that the first stage of controlling the lab remotely from the PC was comparatively easy to achieve, whereas it took rather longer to reach the red letter day when we were actually able to enable Simon Bilton of Tandberg UK to control our Coleraine lab from his office in Leeds. Even after this success with the data transmission side of things, there then still remained the problem of identifying, in a lengthy process of trial and error, the best pathways for the transmission of video and sound signals between the two remote sites. The final results of all these endeavours will, I hope, be on display at the "Show and Tell" session later today.

Since the experiences of the last thirty or so years have made most language teachers of my generation very sceptical about the real value to the teacher of the many so-called " breakthroughs" in the field of educational technology, which have been presented to language teachers as the ultimate aid to teaching during this period, we are all quick to ask what makes this or that particular new piece of kit useful above others, what particular doors does it open that other rival pieces of equipment do not? I presume that this question is now on your lips with regard to what we have chosen to call our "Telematic Teaching Studio". Since it is the most pertinent and relevant question at this stage , I wish to attempt to answer it.

Firstly, as far as my own internal needs are concerned, as Director of the Languages Resource Unit with the responsibility to support the teaching of languages on the currently four-campus - soon to be five- and possibly even six-campus! - University of Ulster , it provides me - and any of my colleagues in other language centres who are similarly operating in a multi-campus institution - potentially with a superbly flexible teaching tool, which in turn - and at a modest cost - transforms a static and by inclination comparatively immobile teaching force into a very flexible one , since each member of the team can be "plugged" into the electronic network and thus deliver his or her teaching skills just wherever and whenever they are required, without having to leave his or her base. It is even perfectly feasible to teach via these links ultimately from the comfort of your own home.

In the context of our ERASMUS and LINGUA networks we can run joint translation courses in real time with one and eventually several partners in Germany or France or Spain etc. and, what is more, enjoy a high degree of "*synchronous* virtual reality" of the kind which the essentially *asynchronous* electronic links such as E-mail and computer conferencing will never allow us to achieve. Students at several location throughout Europe can jointly prepare best versions of sample translation texts or alternatively pursue, e.g. in a series of weekly study seminars, current environmental or political issues of mutual interest and exchange views and opinions in the environment of a live, face to face discussion. What is more, all these exchanges can readily be recorded on sound or video tape for later study and fuller evaluation.

Furthermore, the potential for the further sophistication of this teaching lab system in terms of its facilities is also considerable. External and auxiliary audio and video material, including graphics, can also be sent up and down the line. A fax facility can be added into the equation and electronic whiteboards can be employed and printouts provided from them at the touch of a button on all participating sites for the students and staff to take away and file for future reference. In short, the opportunities for development and thus for the mounting of all kinds of different joint study projects via this medium in the immediate future are, in my view at least, potentially limitless.

13.09.94 Michael R. Jones